PATENT LIT, BIBLIOGRAPHIC FILES:

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Set     Items    Postings   Description
S1    2218545    16847051   S LIGHT? OR ILLUMINA? OR LUMINAT? OR
LUMINESC? OR (FIBER? OR FIBRE?)(2N)OPTIC? OR (LED OR LEDS)(5N)DIODE?
S2      12734       93242   S FIBREOPTIC? OR FIBEROPTIC? OR (WAVEGUIDE?
OR WAVE()GUIDE?)(2N)(LUMINAT? OR ILLUMINAT? OR LIGHT?)
S3     467995     1900537   S SURGIC? OR SURGER? OR SURGEON? OR CHIRURG?
OR MEDICAL? OR OPERAT???()ROOM? ? OR HOSPITAL? OR EMERGENCY()ROOM? ?
S4      51877      621369   S S1:S2 AND S3
S5      11206       62926   S PLURAL? OR SEVERAL? OR MANY OR NUMEROUS?
OR MULTIPLE OR MULTIPLICIT? OR MULTITUD? OR MULTI OR ARRAY? OR
MORE(2W)ONE
S6      12205       89172   S ASSEMBLY? OR ENSEMBLE? OR BUNDLE? OR
MANIFOLD? OR GROUP? ? OR SET OR SETS OR ASSEMBLAG? OR BANK? ? OR ROW OR
ROWS
S7      36804      242088   S INSTRUMENT? OR APPARATUS? OR TOOL? ? OR
IMPLEMENT? OR DEVICE? OR APPLIANCE? OR HANDTOOL? OR HANDPIECE? OR
UTENSIL?
S8       1037        6403   S RETRACT? OR SPREAD? OR (PULL? OR DRAW? OR
DREW)()BACK
S9      10380       74303   S TUBE? OR HOLLOW? OR CYLIND? OR PIPE? OR
CONDUIT? OR SHAFT? OR PIPING? OR TUBING?
S10      2417       18807   S SLEEV? OR TUBULAR? OR SHEATH? OR CHUTE? OR
HOSE? OR HOSING? OR CURV?(2N)WALL?
S11     14042       75543   S BODY OR BODIE? ? OR PERSON? OR PARTY? OR
INDIVIDUAL? OR SUFFERER? OR CONSUMER? OR CLIENT?
S12      8767       59879   S PATIENT? OR HUMAN? OR CANDIDATE? OR
TEST()SUBJECT? OR PARTICIPANT? OR PATRON?
S13      1690       10619   S OUTPATIENT? OR INPATIENT? OR ANIMAL? OR
MAMMAL? OR VICTIM? OR TORSO?
S14       518        2002   S PEOPLE? OR CUSTOMER? OR CLIENT? OR
CANDIDATE? OR PARTICIPANT?
S15        71         529   S TESTSUBJECT? OR TEST()SUBJECT? OR (INJUR?
OR SICK? OR EXPOS? OR SUFFER? OR DISEAS? OR AILING? OR ILL)(2N)(PARTY?
OR PARTIE?)
S16      5152       29054   S BENDAB? OR FLEXIB? OR ELASTIC? OR
ELASTOMER? OR SILICONE OR POLYURETHANE?
S17      7773       84411   S TRACTIL? OR RESILIEN? OR DUCTIL? OR
RUBBER? OR POLYMER? OR PLASTIC?
S18      1101        6748   S THERMOPLASTIC? OR TENSIL? OR PLIANT? OR
PLIAB? OR MALLEAB?
S19        15         113   S AU=(BRANCH C? OR BRANCH, C? OR FOLEY K? OR
FOLEY, K? OR SMITH M? OR SMITH, M? OR ROEHM T? OR ROEHM, T? OR FRANKS
R? OR FRANKS, R?)
S20         0           0   S BRANCH(2N)(CHARLES OR CHARLIE OR CHARLEY
OR CHUCK?) OR FOLEY(2N)KEVIN OR SMITH(2N)MAURICE OR ROEHM(2N)(THOMAS OR
TOM OR TOMMY) OR FRANKS(2N)(RICH OR RICHARD OR DICK)
S21     26403       85235   S IC=(A61B? OR F21V? OR A61F?)
S22     13560       23300   S MC=(S05? OR V07? OR X26?)
S23        15         113   S S19:S20
S24        15         113   IDPAT (sorted in duplicate/non-duplicate
order)
S25        15         113   IDPAT (primary/non-duplicate records only)
S26     51862      620759   S S4 NOT S23
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S27         231       26355    S S26 AND S5:S6(7N)S1:S2 AND
S1:S2(7N)S11:S15 AND S7:S10 AND S16:S18
S28         197       24401    S S27 AND S21:S22
S29         231       35929    S S27:S28
S30         165       31492    S S29 AND AY=1970:2002
S31         176       27495    S S29 NOT AY=2003:2008
S32         193       40278    S S30:S31
S33         193       33763    IDPAT (sorted in duplicate/non-duplicate
order)
S34         192       33733    IDPAT (primary/non-duplicate records only)
 ; show files
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[File 347] **JAPIO** Dec 1976-2007/Oct(Updated 080129)

[File 350] **Derwent WPIX** 1963-2008/UD=200818

Inventor (relevant) results:

US 20070225571
US 20040186346
US 7198598
US 20040143167
US 6152871

34/5,K/13 (Item 13 from file: 350) **Links**
Fulltext available through: Order File History
Derwent WPIX

0013649897 & & *Drawing available*
WPI Acc no: 2003-745919/200370
XRPX Acc No: N2003-597602
Endoscope for surgical applications, has subsets of optical fiber cables which extend between ends of housing, whose proximal ends are coupled to light source and viewer, to illuminate object positional adjacent to their distal end
Patent Assignee: ARRIAGA M A (ARRI-I)
Inventor: ARRIAGA M A

Patent Family (4 patents, 100 & countries)

i. Patent Number	ii. Kind	iii. Date	iv. Application Number	v. Kind
ix. US 20030163030	x. A1	xi. 20030828	xii. US 2002359577	xiii. P
xvii.	xviii.	xix.	xx. US 2003371036	xxi. A
xxv. WO 2003072163	xxvi. A2	xxvii. 20030904	xxviii. WO 2003US5612	xxix. A
xxxiii. AU 2003213269	xxxiv. A1	xxxv. 20030909	xxxvi. AU 2003213269	xxxvii. A
xli. AU 2003213269	xlii. A8	xliii. 20051027	xliv. AU 2003213269	xlv. A

xlix.

Priority Applications (no., kind, date): US 2002359577 P 20020225; US 2003371036 A 20030220

Patent Details

l. Patent Number	li. Kind	lii. Lan	Pgs	Draw	Filing Notes	
liii. US 20030163030	liv. A1	lv. EN	11	6	lvi. Related to Provisional	lvii. US
lviii. WO 2003072163	lix. A2	lx. EN			lxi.	lxii.
lxiii. National Designated States,Original	lxiv. AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR C DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PI RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN Y					
lxv. Regional Designated States,Original	lxvi. AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE MC MW MZ NL OA PT SD SE SI SK SL SZ TR TZ UG ZM ZW					
lxvii. AU 2003213269	lxviii. A1	lxix. EN			lxx. Based on OPI patent	lxxi. WC
lxxii. AU 2003213269	lxxiii. A8	lxxiv. EN			lxxv. Based on OPI patent	lxxvi. W

lxxvii.

Alerting Abstract US A1

NOVELTY - A truncated cone or **cylinder** or ovoid shaped bore (6) extends through a housing (4). Subsets of **optical fiber** cables (16,24) which extend between ends (8,10) of the housing have proximal ends (20,28) which are coupled to a **light** source (22) and viewer, respectively so as to **illuminate** object positioned adjacent to their distal ends. The bore includes a restriction (44) to avoid the passage of barrel of a telescope through the end (10).

USE - For visualizing object in field of view in a broad array of **surgical** disciplines including general **surgery**, gynecology, urology, **plastic surgery**, laryngology, rhinology.

ADVANTAGE - Facilitates **illumination**, viewing and manipulation of **instrument** in field of view of endoscope with minimal interference between the **illumination**, acquisition of a view and the **instrument**, by extending subsets fiber cable between ends of housing provided with a bore, from the **light** source and the viewer.

DESCRIPTION OF DRAWINGS - The figure shows the perspective view of an endoscope.

4 housing

6 bore

8,10 ends
16,24 **optical fiber** cable
20,28 proximal ends
22 **light** source
44 restriction

US Classification, Issued: 600182

File Segment: EngPI; EPI;
DWPI Class: S05; V07; P31
Manual Codes (EPI/S-X): **S05-D04**; **V07-N02**

Endoscope for surgical applications, has subsets of optical fiber cables which extend between ends of housing, whose proximal ends are coupled to light source and viewer, to illuminate object positional adjacent to their distal end Original Titles:Hollow endoscopy... ...**HOLLOW** ENDOSCOPY **Alerting Abstract** ...NOVELTY - A truncated cone or **cylinder** or ovoid shaped bore (6) extends through a housing (4). Subsets of **optical fiber** cables (16,24) which extend between ends (8,10) of the housing have proximal ends (20,28) which are coupled to a **light** source (22) and viewer, respectively so as to **illuminate** object positioned adjacent to their distal ends. The bore includes a restriction (44) to avoid the passage of barrel of a telescope through the end... USE - For visualizing object in field of view in a broad array of **surgical** disciplines including general **surgery**, gynecology, urology, **plastic surgery**, laryngology, rhinology... ...ADVANTAGE - Facilitates **illumination**, viewing and manipulation of **instrument** in field of view of endoscope with minimal interference between the **illumination**, acquisition of a view and the **instrument**, by extending subsets fiber cable between ends of housing provided with a bore, from the **light** source and the viewer... ...16,24 **optical fiber** cable... ...22 **light** source... **Title Terms** .../Index Terms/Additional Words: **SURGICAL**; ... ...**LIGHT**; ... ...**ILLUMINATE**; **Class Codes** International Patent Classification IPC Class Level Scope Position Status Version Date **A61B-001/018** Main **A61B-001/04 A61B-0001/00**... **A61B-0001/00**... Manual Codes (EPI/S-X): **S05-D04**... ...**V07-N02** Original Publication Data by Authority**Original Abstracts:** An endoscope includes a body defining a bore **that** extends therethrough. A number of **fiber optic** cables extend **at least** partially through the **body** and terminate adjacent **one** end of the bore. The number of **fiber optic** cables includes **a first** subset having their ends opposite the **body** coupled to a **light** source. The number **of fiber optic** cables can **also include** one or **more** additional **subsets** having their ends opposite the body coupled to a viewer... ... An endoscope includes a body defining a bore that extends therethrough. A number **of fiber optic** cables extend at least partially through the **body and** terminate adjacent one end of the bore. **The** number of **fiber optic** cables includes a first subset having their **ends opposite** the **body** coupled to a **light** source. The number of **fiber optic** cables can **also** include one or more **additional subsets** having their ends opposite the **body** coupled to a viewer... **Claims:** The invention claimed is: **1**. An

endoscope comprising: a body defining a bore that extends therethrough; and a **plurality** of fiber optic cables extending at least partially through the **body** and terminating adjacent **one end** of the bore, the plurality of **fiber optic** cables including a first subset of **fiber optic** cables having their **ends opposite** the **body** coupled to a source **of light.** ... Basic Derwent Week: 200370...

Below is a cited reference against the above abandoned case:

US-PAT-NO: 5919128

DOCUMENT-IDENTIFIER: US 5919128 A

TITLE: Sparse aperture endoscope

---------- KWIC ---------

Abstract Text - ABTX (1):

An endoscope which reduces the volume needed by the imaging part thereof, maintains resolution of a wide diameter optical system, while increasing tool access, and allows stereographic or interferometric processing for depth and perspective information/visualization. Because the endoscope decreases the volume consumed by imaging optics such allows a larger fraction of the volume to be used for non-imaging tools, which allows smaller incisions in surgical and diagnostic medical applications thus produces less trauma to the patient or allows access to smaller volumes than is possible with larger instruments. The endoscope utilizes fiber optic light pipes in an outer layer for illumination, a multi-pupil imaging system in an inner annulus, and an access channel for other tools in the center. The endoscope is amenable to implementation as a flexible scope, and thus increases the utility thereof. Because the endoscope uses a multi-aperture pupil, it can also be utilized as an optical array,

allowing stereographic and interferometric processing.

US Patent No. - PN (1):
5919128

Brief Summary Text - BSTX (2):
The present invention relates to endoscopes, particularly to an endoscope utilizing fiber optic light pipes for illumination, and more particularly to an endoscope which additionally utilizes a multi-pupil imaging system and a central access channel for tools.

Brief Summary Text - BSTX (3):
Endoscopes are widely used in medicine and other applications, such as inspecting internal and difficult to see/access components of mechanical systems. Existing endoscopes are one of three types: 1) fixed optic telescopes where image is relayed optically (monocular or binocular to produce stereo depth perception; 2) flexible or semi-rigid fiber optic bundles (each fiber is a pixel); and 3) end-mounted camera (CCD) systems where the digital detector is placed in the tip with the imaging optics. There has been a need for improving tools used in laproscopic and other videoscopic medical procedures. The endoscope of this invention satisfies this prior need by: 1) reducing the volume needed by the imaging part of an endoscope; 2) maintains resolution of a wide diameter optical system, but increases tool access; and 3) allows stereographic or interferometric processing for depth and perspective information/visualization. In place of the single pupil imaging lens of a typical prior known endoscope, the endoscope of this invention utilizes a multi-pupil imaging system within which is an access channel for tools.

Brief Summary Text - BSTX (8):

Another object of the invention is to provide an endoscope having an access channel for tools, etc.

Brief Summary Text - BSTX (11):

Another object of the invention is to provide an endoscope which reduces the volume needed for imaging, maintains resolution of a wide diameter optical system, increases tool access, and allows for stereographic or interferometric processing for depth and perspective information/visualization.

Brief Summary Text - BSTX (12):

Another object of the invention is to provide an endoscope which in addition to the use of fiber optic light pipes for illumination, utilizes a multi-pupil imaging system, and a centrally located access channel for tools, etc.

Brief Summary Text - BSTX (13):

Other objects and advantages of the present invention will become apparent from the following description and accompanying drawings. The invention is directed to an endoscope which utilizes a multi-pupil imaging system and an access channel for tools, etc., as well as fiber optic light pipes for illumination. The endoscope of the present invention decreases the volume normally consumed by the imaging optics allowing a larger fraction of the volume to be used for non-imaging tools. In surgery and diagnostic medicine, this allows smaller incisions which produce less trauma to the patient or allows access to smaller volumes than is possible with larger instruments. The medical advantages are reduced pain and decreased time for healing. The endoscope of this invention is also amenable to implementation as a flexible scope, thus increasing the utility. Also, because the endoscope uses a

multi-aperture pupil, it can be treated as an optical array, allowing stereographic and interferometric processing for depth and perspective information. The endoscope of this invention has particular application as a tool in minimally invasive medicine, with potential application in general surgery as well as catheter-based procedures in the treatment of vascular diseases like stroke and stroke causing conditions. The endoscope has non-medical applications such as inspecting internal and difficult to see/access components of mechanical systems, such as seeing behind engine parts.

Detailed Description Text - DETX (2):

The present invention is directed to a sparse aperture endoscope. Endoscopes are widely used in medicine and other applications for internal inspection purposes, and are particularly useful in laproscopic and other videoscopic medical procedures. The invention: 1) reduces the volume needed by the imaging part of the endoscope; 2) maintains resolution of a wide diameter optical system, but increases tool access; and 3) allows stereographic or interferometric processing for depth and perspective information/visualization.

Detailed Description Text - DETX (7):

The endoscope of the present invention impacts the types of designs 1 and 2 above, and the size and weight constrains of all three prior designs. The present invention affects both size and weight because of a hollow core (or multiple channels) which can be produced with no reduction in image quality (spatial resolution).

Detailed Description Text - DETX (9):

FIG. 2 illustrates an embodiment of an endoscope made in accordance with the present invention, and components which correspond to the FIG. 1 prior art endoscope will be given corresponding reference numerals. The basic difference be the FIG. 2 and FIG. 1 endoscopes is that FIG. 2 utilizes a multi-pupil imaging system and has a central access channel for tools, etc. As shown in FIG. 2, the endoscope of this invention, generally indicated at 10', utilizes, like the FIG. 1 endoscope, an outer tube or member 11', and inner tube or member 12', between which is a space or annulus 13' in which are positioned a plurality of fiber optic light pipes 14' for illumination purposes. In FIG. 2, central tube or member 16 to be positioned within inner member 12' and between which is defined a space or annulus 17 in which is located a plurality of pupil imaging lens 18 forming a multi-pupil imaging system. The interior of central tube or member defines a hollow access channel 19, through which tools, etc. may be passed. In the FIG. 2 embodiment, the video is collected through the multi-pupil array 18 using relay optics down the length of the endoscope or via fiber optic bundles. As in the FIG. 1 endoscope the fiber optics 14' in the annulus 13' are connected to a light source for illumination only. In FIG. 2, the diameter, a, is the effective lens diameter (which determines the spatial resolution of the system and can be achieved with many different multi-pupil patterns). The outer diameter, b, determines the overall size of the instrument. The inner diameter, c, determines the size of the largest tool or instrument, etc., that can be manipulated through the endoscope via access channel 19. The multiple pupils or lens 18 must be "combined" to form an

image, just as in multi-aperture telescopes used in astronomy.

Detailed Description Text - DETX (14):
It has thus been shown that the present invention provides an improved endoscope which enable expanded utility of such an instrument by the incorporation therein of a multi-pupil imaging system and an access channel for other tools, etc. The endoscope of this invention provides an improved tool for use, for example, in laproscopic and videoscopic medical procedures, as well as enabling an extended use in non-medical applications imposing difficult to see or difficult access conditions.

Claims Text - CLTX (2):
a central access channel, and

Claims Text - CLTX (3):
a multi-pupil imaging system positioned around said central access channel and (forming an annulus) around said central access channel.

Claims Text - CLTX (6):
4. The improvement of claim 3, wherein said multi-pupil imaging system is located intermediate said fiber optics and said central access channel.

Claims Text - CLTX (19):
a central access channel forming within said third of said three concentric members.

Claims Text - CLTX (22):
12. The endoscope of claim 11, wherein said multi-pupil imaging system includes a plurality of lens located in said second annulus and around said central access channel.

Claims Text - CLTX (28):
means forming an access channel;

Claims Text - CLTX (29):
means forming an annulus around said access channel;

Claims Text - CLTX (33):
19. The endoscope of claim 17, wherein said means forming an access channel and said means forming said annulus is each constructed of expandable/contractable material.

Claims Text - CLTX (37):
23. The endoscope of claim 22, wherein said means forming an imaging system includes a plurality of lens located around said access channel.

Claims Text - CLTX (38):
24. The endoscope of claim 17, additionally including means for forming an annulus within said access channel, and wherein said means forming an illumination system is located in said annulus formed within said access channel.

Claims Text - CLTX (39):
25. The endoscope of claim 17, wherein said means forming said access channel is constructed of a shape memory material, and wherein said means forming said annulus around said access channel is constructed of expandable/contractable material, whereby said access channel and said annulus can be increased in diameter to enable an increase in spatial resolution by said imaging system.

34/5,K/97 (Item 97 from file: 350) **Links**
Fulltext available through: Order File History
Derwent WPIX

0008235119 & & *Drawing available*
WPI Acc no: 1997-341394/199731

XRPX Acc No: N1997-283267

Fiber optic sleeve for surgical instrument - includes soft plastic sleeve which contains fiber optic bundles attached to front of phacoemulsification instrument

Patent Assignee: REYNARD M (REYN-I)

Inventor: REYNARD M

Patent Family (5 patents, 49 & countries)

lxxviii. Patent Number	lxxix. Kind	lxxx. Date	lxxxi. Application Number	lxx
lxxxvi. WO 1997022304	lxxxvii. A1	lxxxviii. 19970626	lxxxix. WO 1995US16936	xc.
xciv. US 5651783	xcv. A	xcvi. 19970729	xcvii. US 1995575829	xcv

cii. The **fiber optic sleeve** (3) is attached to the forefront of a phacoemulsification **instrument** (1). The **sleeve** has a leading end (5) and a trailing end (6) at which there is an elongated standard cannula adapter (7) that is continuous with a frustoconical nipple (8) extending to the cap (9) and then to a tapered applicator tip (10).
An annular chamfer (11) and an adjacent interior lipped flange (12) on the nipple permit insertion and securing in a chamber (13) that provides a liquid tight seal when the **sleeve** is assembled on the **instrument**. The **sleeve** is constructed of soft **plastic** material containing **multiple fiber optic bundles**.
ADVANTAGE - Simple and inexpensive construction which provides focal **illumination** for simultaneous laser application by a **surgeon**.

ciii. Fiber optic sleeve for surgical instrument - ... ...includes soft plastic sleeve which contains fiber optic bundles attached to front of phacoemulsification instrument
Original Titles:MIT OPTISCHEN FASERN VERSEHENE HULSE FUR **CHIRURGISCHE INSTRUMENTE FIBER OPTIC SLEEVE** FOR **SURGICAL INSTRUMENTS** ... ...MANCHON A FIBRES OPTIQUES POUR **INSTRUMENTS CHIRURGICAUX Fiber optic sleeve** for **surgical instruments**. **FIBER OPTIC SLEEVE** FOR **SURGICAL INSTRUMENTS Alerting Abstract** ...The **fiber optic sleeve** (3) is attached to the forefront of a phacoemulsification **instrument** (1). The **sleeve** has a leading end (5) and a trailing end (6) at which there is an elongated standard cannula adapter (7) that is continuous with a... ...an adjacent interior lipped flange (12) on the nipple permit insertion and securing in a chamber (13) that provides a liquid tight seal when the **sleeve** is assembled on the **instrument**. The **sleeve** is constructed of soft **plastic** material containing **multiple fiber optic bundles**. ... ...ADVANTAGE - Simple and inexpensive construction which provides focal **illumination** for simultaneous laser application by a **surgeon**. **Title Terms** .../Index Terms/Additional Words: **SLEEVE**; **SURGICAL**; **INSTRUMENT**; ... ...**PLASTIC**; **Class Codes** International Patent Classification IPC Class Level Scope Position Status Version Date **A61F-009/007** Main **A61B-0001/04**... ...**A61B-0017/00**... ...**A61B-0017/32**... ...**A61B-0019/00**... ...**A61F-0009/007 A61B-0001/04**... ...**A61B-0017/00**... ...**A61B-0017/32**... ...**A61B-0019/00**... ...**A61F-0009/007** Manual Codes (EPI/S-X): **S05-B01**... ...**V07-N** Original Publication Data by Authority**Original Abstracts:**A **fiber optic** integrated phacoemulsification **system is** disclosed comprising **surgical handpieces** (1) for **cataract surgery** which incorporate **fiber optic** bundles (4) **that transmit visible light** to enhance visualization **by** intraocular **illumination**. **Patient** safety is **improved by** the oblique **lighting** to the retina, **thereby** reducing the necessity of direct coaxial **light** from the **surgical microscope**. The **fiber optic bundles** (4) **enable the application** of laser

energy or visible **light** and permit endoscope **visualization** of intraocular structures either through the **surgical handpiece** (1) or **through an** end piece attachment (3... ... A **fiber optic** integrated phacoemulsification system is disclosed comprising **surgical handpieces** for cataract surgery which incorporate fiber optic bundles that transmit visible **light** to enhance **visualization by intraocular illumination. Patient** safety **is** improved by the oblique **lighting to the** retina, thereby reducing the necessity of **direct** coaxial **light** from the **surgical** microscope. The **fiber optic bundles enable** the application **of** laser energy **or visible light** and permit endoscope visualization of intraocular structures either **through** the **surgical handpiece** or through an end piece attachment. A **fiber optic** integrated phacoemulsification system is disclosed comprising **surgical handpieces** (1) for cataract **surgery which** incorporate fiber optic bundles (4) that transmit visible light to enhance visualization by intraocular **illumination. Patient safety** is improved by the oblique **lighting** to the retina, thereby reducing **the necessity** of direct coaxial **light** from the **surgical** microscope. The **fiber optic bundles** (4) enable the application of **laser** energy or **visible light** and **permit endoscope visualization** of intraocular structures either through the **surgical handpiece** (1) **or** through an end piece attachment (3). **Claims:**A disposable **light** transmitting **sleeve**, for **use** with a **surgical instrument, comprising:a** generally **tubular** structure shaped for **attachment** to a **surgical instrument** and formed **of a** soft, **flexible**, nontoxic **medical** grade **plastic**; and,**means** for **controlling** and directing optical radiation internally and substantially along the length of the **sleeve.>...Basic Derwent Week: 1995WO-US0016936**

34/5,K/114 (Item 114 from file: 350) **Links**
Fulltext available through: Order File History
Derwent WPIX

0007297360 & & *Drawing available*
WPI Acc no: 1995-357875/199546
XRPX Acc No: N1995-265969
Fibre-optic catheter for surgical operations e.g. percutaneous transluminal coronary angioplasty - has catheter body with distal end guide part containing mandrel, proximal mount at proximal end, short i.e. 9 cm guide wire lumen body and optical fibre bundle
Patent Assignee: SPECTRANETICS CORP (SPEC-N)
Inventor: BELLENDIR J; HAMMERSMARK D J; TAYLOR K D

Patent Family (1 patents, 1 & countries)

civ. Patent Number	cv. Kind	cvi. Date	cvii. Application Number	cviii. Kind	cix. Dat
cxii. US 5456680	cxiii. A	cxiv. 19951010	cxv. US 1993120385	cxvi. A	cxvii. 1

cxx.

Priority Applications (no., kind, date): US 1993120385 A 19930914

cxxi. **Alerting Abstract** US A
The fibre optic catheter (10) has a tail tube (16) connected to a proximal mount (14) and to an outer jacket (18) with a proximal marking (26), the tube and jacket forming

a catheter body. The distal end of the jacket has a guide part (20), containing a guide wire lumen body (22) which accommodates a guide wire (24), a guide wire entry port (38) and exit port (40), and a radioactive tip marker band (28).
A mandrel (30) has a proximal part (32) of constant diameter and tapers down to a distal part (34) of smaller diameter, which tapers down further to a distal tip portion. The distal part of the mandrel overlaps with the guide wire lumen (36), which is 9 cm, or between 6 and 10 cm long. The mandrel is made of varying materials/dimensions until an optimal stiffness profile of the catheter is obtained, and an optical fibre bundle occupies the catheter body not occupied by the mandrel.
USE/ADVANTAGE - For **illuminating**/ablating intravascular regions. Reduced **Alerting Abstract** ...USE/ADVANTAGE - For **illuminating**/ablating intravascular regions. Reduced kinking and guide wire prolapse due to short, low friction guide wire lumen. Less body vessel trauma due to low misdirection... **Class Codes** International Patent Classification IPC Class Level Scope Position Status Version Date **A61B-0017/22**... ...**A61B-0018/24**... ...**A61B-0019/00 A61B-0017/22**... ...**A61B-0018/20**... ...**A61B-0019/00** Manual Codes (EPI/S-X): **S05-B01**... ...**V07-N** Original Publication Data by Authority**Original Abstracts:**A **fiber optic** catheter has **a short** guide wire lumen (less than 10 cm) extending in a proximal direction from its distal end and an intermediate portion reinforced with a tapered mandrel... ... identification, and the tip of the catheter may include a radiopaque tip marker band for fluoroscopic identification. The short guide wire lumen catheter provides superior **flexibility**, a low profile, **and** low-friction engagement with the guide wire. ...**Claims:**catheter body including a guide portion at a distal end of said catheter body; a proximal mount disposed on a proximal end of said catheter **body**; an optical fiber **bundle connected to** said proximal mount, said **optical fiber bundle extending within** said catheter **body** and **said** guide portion to a distal end of said guide portion; a guide wire lumen body extending from said distal end of said guide portion to...

cxxii. kinking and guide wire prolapse due to short, low friction guide wire lumen. Less body vessel trauma due to low misdirection profile.

(Below is KWIC-ed text of above patent from EAST):

US-PAT-NO: 5456680

DOCUMENT-IDENTIFIER: US 5456680 A

TITLE: Fiber optic catheter with shortened guide wire lumen

---------- KWIC ---------

Abstract Text - ABTX (1):
A fiber optic catheter has a short guide wire lumen (less than 10 cm)
extending in a proximal direction from its distal end and an intermediate

portion reinforced with a tapered mandrel which provides optimal steerability
and trackability characteristics. The distal end of the mandrel is coextensive
with a proximal portion of the guide wire lumen. The intermediate portion of
the catheter may have a marker for visual identification, and the tip of the
catheter may include a radiopaque tip marker band for fluoroscopic
identification. The short guide wire lumen catheter provides superior
flexibility, a low profile, and low-friction engagement with the guide wire.

US Patent No. - PN (1):
5456680

TITLE - TI (1):
Fiber optic catheter with shortened guide wire lumen

Brief Summary Text - BSTX (13):
Some catheters have been developed which have guide wire lumens that are
substantially shorter than the overall catheter body length. U.S. Pat. Nos.
5,040,548 and 5,061,273 to Yock, for example, disclose a balloon catheter
having a guide wire lumen at least 10-15 centimeters long extending from the
catheter's distal tip toward its proximal end. U.S. Pat. No. 4,762,129 to
Bonzel discloses a similar balloon catheter where the shortened guide wire
lumen is formed in the interior of and is substantially coextensive with the
balloon interior. Similarly, U.S. Pat. No. 4,662,368 to Hussein et al.
discloses a catheter for removing stenoses by cauterizing them with a heated
tip in which the tip has a short channel for accommodating a guide wire.

Brief Summary Text - BSTX (15):
It is important to note that though the above prior art catheters make use

of a shortened guide wire lumen, the lumen must still be of a significant length (e.g., in the Yock device, at least 10 cm). If the guide wire lumen length is too short, the Yock patents teach that the wire cannot reliably guide the catheter to the stenosis. Instead, the flexible catheter will tend to bend and kink, thereby impeding proper positioning.

Brief Summary Text - BSTX (17):

While the above designs alleviate the problems associated with catheter exchanges to some degree, they are not without their disadvantages. For example, the interior surface area of the long guide wire lumen gives rise to undesirable frictional forces between the lumen interior and the guide wire. Further, the ability of the catheter to track tortuous passageways is decreased by the additional stiffness imparted to the catheter's distal end by the long guide wire portion and lumen lying therein. Also, the longer guidewire lumen catheters are more cumbersome to exchange than shorter guidewire lumen catheters.

Brief Summary Text - BSTX (19):

It is a further object of this invention to provide a fiber optic catheter having a shortened, low-friction guide wire lumen.

Brief Summary Text - BSTX (20):

It is still a further object of this invention to provide a fiber optic catheter having a shortened guide wire lumen which has a reduced tendency to kink, bend and exhibit guide wire prolapse.

Brief Summary Text - BSTX (22):

The above objects are achieved by providing a fiber optic catheter having a shortened guide wire lumen (less than 10 cm) extending in a proximal direction

from its distal end. An intermediate portion may contain a mandrel having a varying stiffness profile, where the distal end of the mandrel is coextensive with a proximal portion of the guide wire lumen. Preferably, the optical fibers are fixed no more than once within the distal 20 cm of the catheter, thereby allowing the catheter to flex with minimal force. For example, the optical fibers may be fixed at a distal end of the catheter by a glue plug. The optical fibers are not otherwise obstructed in the distal 20 cm of the catheter, thereby maintaining flexibility.

Detailed Description Text - DETX (3):

The distal end of the tail tube 16 is attached to an outer jacket 18 which further accommodates the optical fiber bundle. The tail tube 16 and the outer jacket 18 collectively form a catheter body. The outer jacket 18 may have a proximal marking 26 on it for visual identification of the degree of insertion of the catheter 10. The distal end of the outer jacket 18 includes a guide portion 20 having a shortened guide wire lumen body 22 passing therethrough for accommodating a guide wire 24. The distal end of the guide portion 20 may be terminated by a radiopaque tip marker band 28 for fluoroscopic visualization of the catheter 10 in situ. Also, the guide wire 24 may be of conventional design or, more advantageously, may be of a type capable of delivering light energy itself. Such a fiber optic guide wire is described in more detail in U.S. patent application Ser. No. 07/930,934 to Kasparzyk et al., incorporated herein by reference.

Detailed Description Text - DETX (4):

The tail tubing 16 and the outer jacket 18 may be constructed from any of a

number of suitable materials, such as plasticized vinyl resins, polyethylene, synthetic and natural rubbers and polyurethane elastomers. Preferably, the tail tube 16 is about seventy-two inches long and is constructed from a high durometer polyester elastomer material such as 0.062" OD Dupont Hytrel.RTM. 72D tubing. The outer jacket 18 is preferably a 129 cm length of Hytrel.RTM. 55D tubing with a low-friction hydrophilic coating such as that made by the BSI corporation on its distal 35 centimeters to enhance trackability. After the necking processes described below, the diameter of the jacket is about 0.045" outside diameter (OD). The radiopaque tip marker band 28 is preferably made from a platinum or a radiopaque alloy thereof. The guide portion 20 is advantageously a nine centimeter length of 0.060" OD Hytrel.RTM. 40D tubing, and the guide wire lumen body 22 disposed therein is most advantageously made from polyethylene or polyester elastomer tubing to provide a low-friction surface contacting guide wire 24. The use of gradually lower durometer materials towards the distal tip of catheter 10 increases the flexibility of the catheter tip, thereby enhancing the catheter's trackability.

Detailed Description Text - DETX (5):

FIGS. 2-5 depict the tail tube 16, the outer jacket 18 with the proximal marker 26 thereon, and the guide portion 20 having the guide wire lumen body 22 disposed therein and the radiopaque tip marker band 28 at its distal end. The distal portion of the catheter 10 includes a mandrel 30 passing from the tail tube 16 through the outer jacket 18 to the guide portion 20. As shown more clearly in FIG. 8, the mandrel 30 may have a proximal portion 32 of

substantially constant diameter (preferably about 0.0195" in diameter) and
about 48.5" long. Tapered portion 50 is about 5.9" long, tapering to a
diameter of 0.0095". Distal portion 34 is preferably about 3.5" long and has a
constant diameter of 0.0095" and the distal taper 52 is about 0.25" long and
tapers to about 0.005" diameter. Distal tip 48 is preferably about 0.005" in
diameter and about 1.1" long. About two centimeters of the distal portion of
the mandrel 30 overlaps with the proximal end of the guide wire lumen body 22
along the length of the catheter 10. By varying the dimensions of the mandrel
30, an optimal stiffness profile can be imparted to the catheter 10 to enhance
its trackability and steerability characteristics. Of course, methods other
than varying the thickness of the mandrel 30 may be used to vary its stiffness;
for example, the mandrel 30 may be constructed from compositions of varying
flexibility, or it may be equipped with variable-depth incisions along its
length to increase its flexibility.

Detailed Description Text - DETX (6):

As shown in FIG. 6, the distal tip 48 of mandrel 30 is covered by protective
jacket 44 which is a short (preferably about 7-8 mm) length of Hytrel.RTM.
tubing which protects guide wire lumen body 22 from being inadvertently
punctured by the tip of mandrel 30 when the catheter is flexed in the downward
direction of FIGS. 2 and 6.

Detailed Description Text - DETX (7):

Also shown in FIGS. 2 and 6 is the guide wire lumen body 22 defining a guide
wire lumen 36 having a guide wire entry port 38 at its proximal end at an angle
of approximately 40.degree.-60.degree. to a plane perpendicular to the

longitudinal axis of the catheter and a guide wire exit port 40 substantially concentric with the guide portion 20 at the distal end of the catheter 10. In contrast to the relatively long guide wire lumens in prior art designs, the guide wire lumen 36 in the present invention is less than ten centimeters in length, and is advantageously six to ten centimeters long. Preferably, guide wire lumen 36 is nine centimeters long.

Detailed Description Text - DETX (8):

For simplicity and clarity, the optical fiber bundle 46 has not been shown in FIG. 2 or in the proximal portion of FIG. 6; however, as seen in FIGS. 3-5, it is disposed in the interior portions of tail tube 16, the outer jacket 18 and the guide portion 20 that are not occupied by the mandrel 30 or the guide wire lumen body 22 and guide wire lumen 36. Preferably, the optical fibers comprising bundle 46 have a diameter of approximately 61 .mu.m.

Detailed Description Text - DETX (9):

The tip of the catheter 10 may be terminated by radiopaque tip marker band 28 alone, or it may be complemented by an additional inner band proximate to the guide wire lumen body 22 in the manner of the two-piece optical fiber catheter tip described in U.S. patent application Ser. No. 07/857,458 to Grace et al., incorporated herein by reference.

Detailed Description Text - DETX (10):

Thus, as shown in FIG. 6 and more clearly in FIG. 7, the distal end of guide wire lumen body 22 is covered by inner band 42 (preferably a rigid 0.027 ID, 0.032 OD #304 stainless steel tube about 0.05-0.06" long) which provides structural integrity to the catheter tip to enhance trackability and to provide

a durable end element able to withstand intense light energy reflections,
pressure pulses, and other highly localized effects of the ablation process.
Inner band 42 is disposed on the exterior of guide wire lumen body 22 to avoid
a high friction metal-to-metal contact with guide wire 24.

Detailed Description Text - DETX (11):
While FIGS. 1-8 depict a fiber optic catheter having a distal guide wire
lumen port concentric with the catheter body, other configurations may be
utilized without departing from the spirit and scope of the invention. For
example, FIGS. 9-11 show a shortened guide wire lumen catheter having a guide
wire lumen body 22 extending from a guide wire entry port 38 as in the previous
embodiment to an eccentric distal guide wire port 40 displaced from the
longitudinal axis of catheter 10. As can clearly be seen in FIGS. 9 and 11,
the guide wire exit port 40 is disposed on a side of the catheter axis opposite
the guide wire entry port 38; however, in some cases it may be useful to
incorporate an eccentric guide wire lumen body 22 running substantially
horizontally and parallel to the catheter axis to an eccentric guide wire exit
port on the same said of the axis as the entry port 38.

Detailed Description Text - DETX (12):
A method of making the present invention will now be described. First, the
guide wire lumen body 22 is cut from a suitable piece of tubing and inner band
42 is placed over one end and bonded thereto with a suitable adhesive such as
cyanoacrylate adhesive. Then, outer jacket 18 and guide portion 20 are cut
from suitable pieces of tubing, and the ends are overlapped and fused together
to form the catheter body. During the fusion process, a port 38 is left open
at the joint to accommodate guide wire lumen body 22.

Detailed Description Text - DETX (13):

Next, the distal end of the guide wire lumen body 22 with inner band 42 attached thereto is placed in the middle of the distal end of the optical fiber bundle 46 and the fibers and body 22 are pulled through the radiopaque band 28 and the catheter body. After the fiber bundle 46 is in place, a suitable adhesive such as epoxy is wicked up the fibers from the catheter's distal tip and cured by a suitable process such as UV curing or heat treatment.

Detailed Description Text - DETX (14):

After curing the distal catheter tip, the portion of the optical fiber bundle 46 and guide wire lumen body 22 extending from radiopaque marker band 28 are cut off and the end is polished. The proximal end of guide wire lumen body 22 is then threaded through guide wire entry port 38 using a mandrel to lead the body 22 through the entry port 38. The catheter body is then bonded to the outer band, and the tapered mandrel is inserted into the catheter.

Detailed Description Text - DETX (15):

The catheter is then placed on a necking machine and the proximal portion of the outer jacket 18 is drawn down over the fiber bundle 46 and mandrel 30 to create a reduced diameter shaft. The portion of the guide wire lumen body 22 extending beyond guide portion 22 is then trimmed, and the guide wire lumen body 22 is glued to the guide portion 20 using a suitable adhesive such as cyanoacrylate. Proximal marker 26 is cut from a short length of tubing having a color contrasting with that of the outer jacket 18 and is heat fused onto the catheter body at a specified location along its length. The tail tubing 16 is

slid over the proximal portion of the outer jacket 18 and the two are heat
fused together. The proximal end of the optical fiber bundle 46 is attached to
proximal mount 14. Finally, the distal 35 centimeters of the catheter is
coated with a hydrophilic BSI coating.

Claims Text - CLTX (5):
a guide wire lumen body extending from said distal end of said guide portion
to a proximal portion of said guide portion, an interior surface of said guide
wire lumen body defining a guide wire lumen; and

Claims Text - CLTX (7):
wherein said guide wire lumen is less than ten centimeters in length.

Claims Text - CLTX (8):
2. The catheter of claim 1, wherein said guide wire lumen is about nine
centimeters in length.

Claims Text - CLTX (10):
4. The catheter of claim 1, wherein a distal end of said mandrel is
coextensive with a proximal portion of said guide wire lumen body.

Claims Text - CLTX (18):
a proximal portion of said guide wire lumen body exits said guide portion
through an exterior surface of said guide portion to define a guide wire entry
port; and

Claims Text - CLTX (19):
a distal portion of said guide wire lumen body terminates substantially
coplanar with a distal end of said guide portion to define a guide wire exit
port.

Claims Text - CLTX (21):
10. The catheter of claim 1, wherein said proximal portion of said guide

wire lumen body does not obstruct said optical fiber bundle.

Claims Text - CLTX (25):
a guide wire lumen body extending from a proximal end at a proximal portion of said guide portion to a distal end at a distal end of said guide portion, an interior surface of said guide wire lumen body defining a guide wire lumen;

Claims Text - CLTX (26):
a distal fiber terminator engaging said distal end of said optical fiber bundle and said distal end of said guide wire lumen and maintaining said distal ends of said optical fiber bundle and guide wire lumen in place relative to said distal end of said guide portion; and

Claims Text - CLTX (27):
wherein said guide wire lumen is less than ten centimeters in length;

Claims Text - CLTX (30):
12. The catheter of claim 11, wherein said guide wire lumen is about nine centimeters in length.

Claims Text - CLTX (33):
15. The catheter of claim 11, wherein a distal end of said mandrel is coextensive with a proximal portion of said guide wire lumen body.

Claims Text - CLTX (41):
a proximal portion of said guide wire lumen body exits said guide portion through an exterior surface of said guide portion to define a guide wire entry port; and

Claims Text - CLTX (42):
a distal portion of said guide wire lumen body terminates substantially coplanar with a distal end of said guide portion to define a guide wire exit

port.

Claims Text - CLTX (46):
a guide wire lumen body less than ten centimeters in length and extending from a proximal portion of said guide portion to a distal end of said guide portion, an interior surface of said guide wire lumen body defining a guide wire lumen;

Claims Text - CLTX (49):
22. The catheter of claim 21, wherein said guide wire lumen is about nine centimeters in length.

Claims Text - CLTX (56):
27. The catheter of claim 23, wherein a distal end of said mandrel is coextensive with a proximal portion of said guide wire lumen body.

Claims Text - CLTX (62):
a proximal portion of said guide wire lumen body exits said guide portion through an exterior surface of said guide portion to define a guide wire entry port; and

Claims Text - CLTX (63):
a distal portion of said guide wire lumen body terminates substantially coplanar with a distal end of said guide portion to define a guide wire exit port.

Claims Text - CLTX (67):
a guide wire lumen body less than ten centimeters in length and extending from a proximal portion of said guide portion intermediate said distal end of said catheter body and a proximal end of said catheter body, to a distal end of said guide portion, an interior surface of said guide wire lumen body being lubricious and defining a guide wire lumen;

Claims Text - CLTX (74):
a fiber terminator, disposed at a distal end of said guide portion, engaging
a distal end of said optical fiber bundle and maintaining said distal ends of
said optical fiber bundle and guide wire lumen in place relative to said distal
end of said guide portion;

34/5,K/118 (Item 118 from file: 350) Links
Fulltext available through: Order File History
Derwent WPIX

0007166490 & *Drawing available*
WPI Acc no: 1995-205874/199527
XRPX Acc No: N1995-161292
Diagnosing-treatment endoscope for medical applications - has laser light supply device for delivering laser light to probe, whose medial portion includes first light transmission device for receiving laser light from laser light source device
Patent Assignee: WILDFLOWER COMMUNICATIONS INC (WILD-N)
Inventor: ARENBERG I K; FLOCK S T; WANER M

Patent Family (1 patents, 1 & countries)

cxxiii. Patent Number	cxxiv. Kind	cxxv. Date	cxxvi. Application Number	cxxvii. Kind
cxxxi. US 5419312	cxxxii. A	cxxxiii. 19950530	cxxxiv. US 199350555	cxxxv. A

cxxxix. The appts includes a **flexible** probe having a medial portion, first and second ends, the first end of the probe being sized for placement within the **body** cavity. A laser **light** supply **device** is operatively connected to the probe for delivering laser **light** to the probe.
A first **light** transmission **device** is positioned within the medial portion of the probe for receiving the laser **light** from the laser **light** supply **device**. The latter is operatively connected to the laser **light** supply **device** in order to receive the laser **light** from it. The laser **light** is delivered by the first **light** transmission **device** to the **body** cavity when the first end of the probe is positioned.
USE/ADVANTAGE - To perform endoscopic observation of body cavities. Capable for insertion within relative small body cavities such as inner ear, while producing images for observation, with provision for delivering laser **light** for treatment purposes.

cxl. Diagnosing-treatment endoscope for medical applications... ...has laser light supply device for delivering laser light to probe, whose medial portion includes first light transmission device for receiving laser light from laser light source device Original Titles: Multi-function endoscope **apparatus Alerting Abstract**

...The appts includes a **flexible** probe having a medial portion, first and second ends, the first end of the probe being sized for placement within the **body** cavity. A laser **light** supply **device** is operatively connected to the probe for delivering laser **light** to the probe... ...A first **light** transmission **device** is positioned within the medial portion of the probe for receiving the laser **light** from the laser **light** supply **device**. The latter is operatively connected to the laser **light** supply **device** in order to receive the laser **light** from it. The laser **light** is delivered by the first **light** transmission **device** to the **body** cavity when the first end of the probe is positioned... ...of body cavities. Capable for insertion within relative small body cavities such as inner ear, while producing images for observation, with provision for delivering laser **light** for treatment purposes. **Title Terms** .../Index Terms/Additional Words: **MEDICAL**; ... ...**LIGHT**; ... ...**DEVICE**; **Class Codes** International Patent Classification IPC Class Level Scope Position Status Version Date **A61B-0001/00**... ...**A61B-0001/04**... ...**A61B-0001/313**... ...**A61B-0018/24**... ...**A61B-0005/042 A61B-0001/00**... ...**A61B-0001/04**... ...**A61B-0001/313**... ...**A61B-0018/20**... ...**A61B-0005/0408** Manual Codes (EPI/S-X): **S05-D04** Original Publication Data by Authority**Original Abstracts:**A multi-function endoscope capable of insertion within a body cavity for treatment/diagnostic purposes. The endoscope includes a **flexible** probe having an **optical** fiber connected to a laser light source, an optical **fiber bundle** connected **to an illuminating light** source, and **another optical fiber bundle** with **a focusing lens** thereon connected to a viewing system. The probe further includes an **optical fiber** having a **sensor system** associated therewith for making temperature and fluid pressure measurements within the body cavity. Also included are fluid **conduits** through the probe, **and** detecting wires for receiving electrical potentials from body cavity tissues. Finally, the probe includes steering wires which, when moved, cause probe movement. The steering wires... **Claims:**An endoscope **apparatus** for **use** in analyzing, treating, and diagnosing conditions within a body cavity comprising: a **flexible** probe **having** a medial portion, a first end, and a second end, said first end of said probe being sized for placement within said **body** cavity; **laser light** supply **means** operatively connected to said probe for delivering laser **light** to **said** probe; first **light** transmission **means** positioned within said medial portion of said probe for receiving said laser **light** from **said** laser **light** supply **means**, said first **light** transmission **means** being operatively connected to said laser **light** supply **means** in order to receive said laser **light** therefrom, **said** laser **light** being **delivered** by said first **light** transmission **means** to said **body** cavity **when** said first end of said probe is positioned therein; primary **illumination** means **operatively** connected to said probe for delivering **illuminating light thereto**; **second light** transmission **means** positioned within said medial portion of said probe for receiving said **illuminating light from said** primary **illumination** means, **said** second **light** transmission **means** being operatively connected to said primary **illumination** means **in** order to receive said **illuminating light therefrom, said illuminating light being delivered** by said second **light** transmission **means** to said **body** cavity **when** said first end of said probe is positioned therein; third **light** transmission **means** positioned within said medial portion of said probe for receiving visual images from said body cavity, **said** visual images being generated by said **illuminating light delivered from** said second **light** transmission **means** into said **body** cavity; **observation** means operatively connected to said third **light** transmission **means** for enabling said visual images received from said third **light** transmission **means** to be viewed by an operator of said endoscope **apparatus**; secondary **illumination** means **operatively** connected to said

probe for delivering additional **light** thereto; **fourth light** transmission **means** positioned within said medial portion of said probe and operatively connected to said secondary **illumination** means **for** receiving said additional **light** from **said** secondary **illumination** means; **temperature** and fluid pressure sensing means operatively connected to said fourth **light** transmission **means** for determining temperature and fluid pressure levels within said body cavity; tissue potential sensing means positioned within said medial portion of said probe for receiving... Basic Derwent Week: 199527

(Additional text from EAST which is KWIC-ed):

As illustrated in FIG. 1, the optical fiber 21 is positioned within the interior region 25 of the medial portion 18 of the probe 12 by insertion thereof into a passageway 30 of uniform diameter which extends entirely through the medial portion 18 of the probe 12 from the first end 14 to the second end 16. The passageway 30 has a preferred uniform diameter of about 45-150 microns. The optical fiber 21 preferably has a uniform diameter which is less than that of the passageway 30 so that the optical fiber 21 may be selectively movable within the medial portion 18 of the probe 12. In a preferred embodiment, the diameter of the optical fiber 21 will be about 20-100 microns, with a clearance of about 25-50 microns between the optical fiber 21 and the interior walls of the passageway 30. This will enable the first end 22 of the optical fiber 21 to be moved outwardly from the end face 32 of the first end 14 of the probe 12 as shown in FIG. 1. Preferably, this configuration will allow the first end 22 of the optical fiber 21 to be moved outwardly to a distance of about 1-10 mm from the end face 32 of the probe 12 so that laser light passing through the optical fiber 21 may be more accurately applied to specific tissue zones within the selected body cavity. Movement of the optical fiber 21 may be

accomplished through the use of a conventional stepper motor unit 34 (FIG. 3) operatively connected to roller units 35 (e.g. made of rubber or the like) which frictionally communicate with portion 36 of the optical fiber 21 adjacent the second end 24 thereof as schematically illustrated in enlarged format in FIG. 3. Selective operation of the stepper motor unit 34 causes movement of the roller units 35 which correspondingly move the optical fiber 21. The stepper motor unit 34 is of a type which is well known in the art. For example, an exemplary stepper motor unit 34 which may be used herein in accordance with the present invention is commercially available from Superior Electric of Bristol, Conn. (U.S.A.). The stepper motor unit 34 is preferably operated and controlled using a microcomputer 38 (e.g. a microcomputer manufactured by Futura/2000 of Little Rock, Ariz. (U.S.A.), model number 486DX2/66) to which a variable manual controller 39 (e.g. conventionally known as a "joystick") is connected. All of these components (e.g. the stepper motor unit 34, microcomputer 38 and variable manual controller 39) are commercially available components which are well known in the art and may be readily configured and operated by the endoscope user. Furthermore, the present invention shall not be limited to the foregoing components and arrangements thereof which are described above for example purposes.

Detailed Description Text - DETX (17):

The primary bundle 80 may be either round or elliptical, and is adapted for receipt within the medial portion 18 of the probe 12 through a passageway 90 of uniform diameter which extends entirely through the medial portion 18 of the probe 12 from the first end 14 to the second end 16. The passageway 90 may be

round or elliptical, depending on the selected configuration of the primary bundle 80. In the embodiment illustrated in FIG. 1, the passageway 90 is substantially round, having a uniform diameter of about 50-200 microns. Likewise, in the embodiment of FIG. 1, the primary bundle 80 is substantially round, having a uniform diameter of about 100-300 microns. Preferably, the diameter of the primary bundle 80 should be about equal to or slightly greater than the diameter of the passageway 90, so that the primary bundle 80 may be urged inwardly into the passageway 90 and fixedly retained therein through resilient frictional engagement between the primary bundle 80 and the interior walls (not shown) of the passageway 90. An adhesive (e.g. conventional autologous fibrin glue as generally described in U.S. Pat. No. 4,874,368 to Miller et al.) may also be used to secure the primary bundle 80 within the passageway 90. In the alternative, the primary bundle 80 may be movable within the passageway 90 in the same manner described above regarding optical fiber 21 by making the diameter of the passageway 90 slightly larger than the diameter of the primary bundle 80 (e.g. so that there is a clearance between the primary bundle 80 and the interior walls of the passageway 90 of about 75-225 microns.) Movement of the primary bundle 80 may then be accomplished through the use of a conventional stepper motor unit 92 (FIG. 4) operatively connected to roller units 94 (e.g. made of rubber or the like) which frictionally communicate with portion 96 of the primary bundle 80 adjacent the second end 88 thereof as illustrated in FIG. 4. Selective operation of the stepper motor unit 92 causes movement of the roller units 94 which correspondingly move the primary bundle

80. The stepper motor unit 92 is preferably operated and controlled using microcomputer 38 and variable manual controller 39 as described above which are operatively connected to the stepper motor unit 92. It should also be noted that the stepper motor unit 92 and the roller units 94 may be of the same general type as the stepper motor unit 34 and roller units 35 described above.

Detailed Description Text - DETX (19):

In the illustrated embodiment wherein the primary bundle 80 is fixedly secured within the passageway 90, the first end 84 extends slightly outward from the end face 32 of the first end 14 of the probe 12 as indicated above. With reference to FIGS. 1 and 4, the second end 88 of the primary bundle 80 extends outwardly from second end 16 of probe 12, and terminates within connection box 40 (FIG. 4). The second end 88 is thereafter operatively connected to primary illumination means 99 (FIG. 1) within the connection box 40 so that illuminating light (e.g. white light) may be effectively delivered to the selected body cavity through the primary bundle 80. As schematically illustrated in FIG. 4, the second end 88 of the primary bundle 80 is operatively connected using a conventional connector unit 102 (e.g. a standard SMA connector or comparable device) to wall 106 of a chamber 108 (shown schematically and in cross-section in FIG. 4). Positioned within the interior 110 of the chamber 108 is a focusing lens 112 which is preferably capable of movement in the Z axis. The lens 112 may, in a preferred embodiment, be aspheric or a fiber-coupling sphere, with both structures being well-known in the art. Likewise, the lens 112 is preferably coated with a conventional

anti-reflective material (e.g. MgF.sub.2). In addition, the lens 112 will have an F# equal to 1/2(NA), wherein NA is defined in the same manner described above relative to lens 50.

Detailed Description Text - DETX (22):

The probe 12 of the endoscope apparatus 10 further includes third light transmission means 139 within the medial portion 18 of the probe 12 for receiving visual images from the selected body cavity. In a preferred embodiment as illustrated in FIG. 1, the third light transmission means consists of a secondary bundle 140 of about 4000-6000 individual, elongate glass optical fibers 142. The individual optical fibers 142 within the secondary bundle 140 are commercially available from 3M Specialty Optical Fibers of West Haven, Conn. (U.S.A.). The secondary bundle 140 is substantially circular in cross-section, and fixedly positioned within the medial portion 18 of the probe 12 by placement of the secondary bundle 140 within a passageway 144 which extends entirely through the medial portion 18 of the probe 12 from the first end 14 to the second end 16. The secondary bundle 140 further includes a first end 146 and a second end 148, with the first end 146 being positioned adjacent the first end 14 of the probe 12 as shown in FIG. 1. In addition, the secondary bundle 140 has a preferred uniform diameter of about 250-500 microns with a preferred minimum bending radius of about 1.0 cm.

Detailed Description Text - DETX (23):

Preferably, the diameter of the secondary bundle 140 should be equal to or slightly greater than the diameter of the passageway 144 so that the secondary bundle 140 may be urged inwardly into the passageway 144 and fixedly retained

therein through resilient frictional engagement between the secondary bundle 140 and the interior walls (not shown) of the passageway 144. Accordingly, in a preferred embodiment, the passageway 144 will have a uniform diameter of about 250- 500 microns. An adhesive (e.g. of the same general type described above which is used to secure the primary bundle 80 within the passageway 90) may also be used to additionally secure the secondary bundle 140 within the passageway 144.

Detailed Description Text - DETX (24):

In the alternative, the secondary bundle 140 may be movable within the passageway 144 in the same manner indicated above regarding optical fiber 21 by making the diameter of the passageway 144 slightly larger than the diameter of the secondary bundle 140 (e.g. so that there is a clearance between the secondary bundle 140 and the interior walls of the passageway 144 of about 25-50 microns). In this embodiment, movement of the secondary bundle 140 may be accomplished through the use of a conventional stepper motor unit 150 (FIG. 5) operatively connected to roller units 152 (e.g. made of rubber or the like) which frictionally communicate with portion 156 of the secondary bundle 140 adjacent the second end 148 thereof as illustrated in FIG. 5. Selective operation of the stepper motor unit 150 causes movement of the roller units 152 which correspondingly move the secondary bundle 140. The stepper motor unit 150 is preferably operated and controlled using microcomputer 38 and variable manual controller 39 as described above which are operatively connected to the stepper motor unit 150. It should also be noted that the stepper motor unit 150 and the roller units 152 may be of the same general type as the stepper

motor unit 34 and roller units 35 indicated above. Furthermore, it is preferred that the secondary bundle 140 be coherent. The term "coherent" as used herein shall involve a situation in which the orientation of the fibers 142 (relative to each other) at the first end 146 of the secondary bundle 140 is the same as the orientation of the fibers 142 at the second end 148 of the bundle 140. The use of a coherent secondary bundle 140 is important because a coherent optical fiber bundle can normally transmit a visual image without the distortion or scrambling which typically occurs when a non-coherent bundle is used.

Detailed Description Text - DETX (26):

In a preferred embodiment wherein the secondary bundle 140 is fixedly secured within the passageway 144, the lens 160 and first end 146 of the secondary bundle 140 preferably extend slightly outward from the end face 32 of the first end 14 of probe 12. Furthermore, it should be noted that the outer surface 162 of the lens 160 has rounded edges 164 in order to ensure that tissues within the selected body cavity are not damaged during entry therein by the probe 12.

Detailed Description Text - DETX (32):

The tertiary optical bundle 222 is positioned within a passageway 226 through the medial portion 18 of the probe 12 which extends continuously from the first end 14 to the second end 16. Preferably, the diameter of the tertiary optical bundle 222 should be about equal to or slightly greater than the diameter of the passageway 226 so that the tertiary optical bundle 222 may be urged inwardly into the passageway 226 and fixedly retained therein through

resilient frictional engagement between the tertiary optical bundle 222 and the interior walls (not shown) of the passageway 226. Accordingly, in a preferred embodiment, the passageway 226 will have a uniform diameter of about 190-540 microns. An adhesive (e.g. of the same general type described above which is used to secure primary bundle 80 within passageway 90) may additionally be used to secure the tertiary optical bundle 222 within the passageway 226. In the alternative, the tertiary optical bundle 222 may also be movable within the passageway 226 in the same manner described above regarding optical fiber 21 by making the diameter of the passageway 226 slightly larger than the diameter of the tertiary optical bundle 222 (e.g. so that there is a clearance between the tertiary optical bundle 222 and the interior walls of the passageway 226 of about 25-50 microns). Movement of the tertiary optical bundle 222 may then be accomplished through the use of a stepper motor/roller unit/computer system of exactly the same type described above relative to movement of the secondary bundle 140 as illustrated in FIG. 5.

Detailed Description Text - DETX (33):

In a preferred embodiment wherein the tertiary optical bundle 222 is fixedly secured within the passageway 226, the first end 214 of the ring structure 212 extends outwardly from the end face 32 of the first end 14 of the probe 12. The lens 160 and the first end 146 of the secondary bundle 140 preferably extend slightly outward from the first end 214 of the ring structure 212 as illustrated in FIG. 2. The second end 148 of the secondary bundle 140 is operatively attached to the observation means 183 and the associated components described above and illustrated in FIG. 5. The second end 216 of the ring

structure 212 is operatively connected to the primary illumination means 99 and associated components described above with respect to primary bundle 80 as illustrated in FIG. 4.

Detailed Description Text - DETX (36):

In a preferred embodiment, the tissue potential sensing means 229 includes at least one and preferably about three elongate primary wire members 230, with each wire member 230 having a first end 232 and a second end 234. In a preferred embodiment, the first end 232 of each wire member 230 will include a spherical member or ball 233 which is fixedly secured to the first end 232 or formed as an integral part thereof. For the sake of clarity, only one primary wire member 230 is illustrated in FIG. 1. In addition, each of the primary wire members 230 has a preferred uniform diameter of about 5-10 microns. This size will enable electrical potentials to be measured down to single hair cells in the inner ear as described above. Each of the primary wire members 230 is preferably is made of platinum, silver, or a silver alloy (e.g. silver/silver chloride), and is selectively movable within the medial portion 18 of the probe 12. To enable such movement, each of the primary wire members 230 is positioned within a passageway 236 through the medial portion 18 of the probe 12 having a preferred diameter which is slightly larger than the diameter of the primary wire member 230 positioned therein. Each passageway 236 extends continuously from the first end 14 to the second end 16 of the probe 12 as illustrated. In a preferred embodiment, the diameter of each passageway 236 will be about 15-60 microns, thereby providing a clearance of about 10-55 microns between each primary wire member 230 and the interior walls of its

associated passageway 236.

Detailed Description Text - DETX (39):

With reference to FIG. 1, the probe 12 further includes fluid transmission means 249 therein so that various fluid materials (e.g. defined herein as liquids and/or gases) may be delivered to and from the selected body cavity. For example, it may be necessary and appropriate for liquid therapeutic agents and/or irrigating materials to be delivered to tissues within the selected body cavity. It may also be desirable or necessary for fluids within the body cavity to be removed/drained as desired (e.g. the removal of endolymph/perilymph samples from the inner ear for biochemical/immunological analysis). Furthermore, the fluid transmission means 249 may be used to remove/withdraw smoke or other vapors from within the selected body cavity which result from the use of laser surgical techniques. To accomplish this, the medial portion 18 of the probe 12 includes at least one and preferably two continuous passageways 250 therethrough. For the sake of clarity, only one passageway 250 is illustrated in FIG. 1. Passageway 250 extends entirely through the medial portion 18 as illustrated in FIG. 1 from the first end 14 of the probe 12 to the second end 16. Each passageway 250 will have a substantially uniform diameter which is preferably about 100-200 microns. Likewise, each passageway 250 will have a first end 252 which is positioned at the first end 14 of the probe 12 and a second end 254 which is positioned at the second end 16 of the probe 12. Using the passageways 250, the transfer/drainage of materials from the body cavity is readily accomplished through the medial portion 18 of the probe 12 as previously indicated. More

specifically, the application of negative pressure to the passageways 250 will
enable fluids or tissue/cellular materials to be removed from the body cavity,
while the exertion of positive pressure through the passageways 250 will allow
fluids and the like to be delivered to various points within the body cavity.

Detailed Description Text - DETX (40):

Next, the probe 12 of the endoscope apparatus 10 includes a unique subsystem
for making accurate temperature and fluid pressure measurements from within a
selected body cavity. Specifically, the probe 12 includes fourth light
transmission means 259 which is used to make fluid pressure and temperature
measurements within the selected body cavity in a highly unique and effective
manner. Specifically, the fourth light transmission means 259 consists of a
secondary elongate optical fiber 260 which is movably positioned within the
medial portion 18 of the probe 12. The optical fiber 260 consists of a
conventional glass fiber which may be commercially obtained from 3M Specialty
Optical Fibers of West Haven, Conn. (U.S.A.). The optical fiber 260 has a
uniform diameter of about 50-100 microns, and includes a first end 262 and a
second end 264 as illustrated in FIG. 1. The first end 262 of the optical
fiber 260 is generally positioned adjacent the first end 14 of the probe 12.
Furthermore, in a preferred embodiment, the first end 262 of the optical fiber
260 is movable outwardly by a distance of about 1-10 mm from the end face 32 of
the first end 14 of probe 12. This is accomplished through placement of the
optical fiber 260 within a passageway 270 having a diameter which is slightly
larger than that of the optical fiber 260 so that the optical fiber 260 may

freely move therein. The passageway 270 extends continuously within the medial portion 18 of the probe 12 from the first end 14 to the second end 16 thereof. Preferably, the passageway 270 has a uniform diameter of about 100-150 microns, thereby providing a preferred clearance between the optical fiber 260 and the interior walls (not shown) of the passageway 270 of about 50 microns. In addition, movement of the optical fiber 260 within the passageway 270 may take place through the use of a conventional stepper motor unit 272 (FIG. 7) operatively connected to roller units 274 (e.g. made of rubber or the like) which frictionally communicate with portion 276 of the optical fiber 260 as illustrated in FIG. 7. Selective operation of the stepper motor unit 272 causes movement of the roller units 274 which correspondingly move the optical fiber 260. The stepper motor unit 272 is preferably operated and controlled using microcomputer 38 and variable manual controller 39 as described above which are operatively connected to the stepper motor unit 272. It should also be noted that the stepper motor unit 272 and the roller units 274 are of the same general type as the stepper motor unit 34 and roller units 35 described above.

Detailed Description Text - DETX (46):

As further illustrated in FIG. 7 and mentioned above, chamber 284 also includes a movable optical filter 294 of conventional design which is positioned between the lens 296 and the one-way mirror 292. The optical filter 294 is designed to filter out any laser light which may pass through liquid crystal 280 and optical fiber 260 during operation of the laser light source 58. The passage of such laser light is undesirable in that it will typically

interfere with proper operation of the spectrophotometer 300, thereby causing inaccurate readings to be obtained. To prevent this from occurring, the optical filter 294 is raised to at least about a 45.degree. angle as shown in FIG. 7 in order to block the passage of any laser light into the one-way mirror 292 and the spectrophotometer 300. In a preferred embodiment, the optical filter 294 will be interchangeable with respect to the laser light wavelength being used. For example, if an infra-red laser light source 58 is used in the endoscope apparatus 10, an infra-red optical filter 294 would be appropriate.

Detailed Description Text - DETX (52):

In a preferred embodiment, each secondary wire member 310 is positioned within a passageway 320 which extends entirely through the medial portion 18 of the probe 12 from the first end 14 to the second end 16. A representative passageway 320 extending through the medial portion 18 is partially illustrated in FIG. 1 in dashed lines. Although only one passageway 320 is shown in FIG. 1 for the sake of clarity, each secondary wire member 310 is positioned within an individual passageway 320 as noted above.

Detailed Description Text - DETX (53):

Each passageway 320 is preferably designed to have a diameter which is slightly larger than the diameter of the secondary wire member 310 positioned therein. Specifically, each passageway 320 will preferably have a diameter of about 30-70 microns, thereby providing a clearance of about 10-20 microns between the inner walls (not shown) of the passageway 320 and the secondary wire member 310 positioned therein. However, so that the secondary wire members 310 may be used to steer the probe 12, the first end 313 of each

secondary wire member 310 is fixedly secured to the first end 14 of the probe 12. To accomplish this in accordance with a preferred embodiment of the present invention, the first end 313 of each secondary wire member 310 is preferably configured to include a substantially circular head portion 329. The head portion 329 of each secondary wire member 310 will have a diameter which exceeds the diameter of the passageway 320 associated with the wire member 310 under consideration. To secure the first end 313 of each secondary wire member 310 to the first end 14 of the probe 12, a portion of adhesive material (e.g. a conventional epoxy adhesive) is applied to the head portion 329 of each wire member 310. Thereafter, the head portion 329 of each wire member 310 is positioned against the end face 32 (FIG. 1) of the probe 12. In this manner, the head portion 329 (and first end 313) of each secondary wire member 310 may be secured to the first end 14 of the probe 12. The remaining portions of each secondary wire member 310 (other than the first end 313 and head portion 329 thereof) will be free to move and flex within its associated passageway 320. This design facilitates movement and control of the entire probe 12 using the secondary wire members 310 as described below.

Detailed Description Text - DETX (57):

With continued reference to FIG. 2, each band 350 has a first end 352 (adjacent first end 14 of the probe 12) and a second end 353 (adjacent second end 16 of the probe 12). As shown in FIG. 2, the preferred width of each band 350 will gradually increase from the first end 352 to the second end 353. For example, the preferred width of each band 350 at first end 352 will be about

20-200 microns while the width of the band 350 at the second end 353 will be about 100-400 microns. The greater width of each band 350 at the second end 353 thereof is desirable in order to provide the probe 12 with more bending capability at the first end 14 thereof. Enhanced bending capability at the first end 14 enables the first end 14 to more readily pass through small curves and passageways which may be encountered during use of the probe 12 in a selected body cavity.

Claims Text - CLTX (21):

7. The endoscope apparatus of claim 1 further comprising protection means for preventing passage of any of said laser light from said laser light supply means into said observation means when said laser light supply means is in operation, said protection means comprising a pivotally movable mirror member positioned in front of said laser light supply means, said mirror member being oriented in a horizontal position when blockage of laser light from said laser light supply means is not desired and oriented in an upwardly tilted position when blockage of laser light from said laser light supply means is desired.

Claims Text - CLTX (30):

protection means for preventing passage of any of said laser light from said laser light supply means into said observation means when said laser light supply means is in operation, said protection means comprising a pivotally movable mirror member positioned in front of said laser light supply means, said mirror member being oriented in a horizontal position when blockage of laser light from said laser light supply means is not desired and oriented in an upwardly tilted position when blockage of laser light from said laser light

supply means is desired;

Claims Text - CLTX (34):
fluid transmission means within said medial portion of said probe for
delivering fluid materials to and from said body cavity through said probe,
said fluid transmission means comprising at least one continuous passageway
through said probe from said first end of said probe to said second end of said
probe;

34/5,K/121 (Item 121 from file: 350) **Links**
Fulltext available through: Order File History
Derwent WPIX

0007088565 *& & Drawing available*
WPI Acc no: 1995-114399/199515
XRPX Acc No: N1995-090294
Vaginal fornix illumination instrument - transmits light from fibre-optic source through light transmissive plastic body including elongated stem and cup with hollow engageable over cervix, light being transmitted through cup rim through fornix
Patent Assignee: PATTERSON S (PATT-I); SANFORD T H (SANF-I)
Inventor: PATTERSON S; SANFORD T H

Patent Family (3 patents, 20 & countries)

cxli. Patent Number	cxlii. Kind	cxliii. Date	cxliv. Application Number	cxlv. Kind	cxlvi. Da
cxlix. US 5394863	cl. A	cli. 19950307	clii. US 19933393	cliii. A	cliv. 199

clvii. The stem (12) of a **pipe** body (11) is connected to a **tube** (26) containing a **fibre=optic bundle** (27) leading to a remote **light** source. The **tube** engages the stem at the inset (14), holding it to the **bundle** at the end for **light** transmission through the **body**. When the **body** is in the vagina, the peripheral rim (17) of the cup (15) of the **body** is at the fornix (33). **Light** passes through the **body** from the end of the stem and exits the rim to **illuminate** the fornix.
The **illumination** of the fornix enables a **surgeon** to determine exactly where tissues are to be cut to remove the cervix from its surrounding attachments during e.g. hysterectomy. Blood from the cutting of tissues may flow into the **hollow** of the cup.
USE/ADVANTAGE - For making fornix visible and defined inside body cavity for execution of **surgical** or **medical** therapeutic procedures. For treatment of endometriosis via laparoscopy or performance of hysterectomy via pelviscopy. For treatment of infertility and pelvic inflamminatory disease. Provides operator with

clear definition. **Vaginal fornix illumination instrument - ... ...transmits light from fibre-optic source through light transmissive plastic body including elongated stem and cup with hollow engageable over cervix, light being transmitted through cup rim through fornix Original Titles:**Vaginal fornix **illuminator** ... ...VAGINAL FORNIX **ILLUMINATOR Alerting Abstract** ...The stem (12) of a **pipe** body (11) is connected to a **tube** (26) containing a **fibre=optic bundle** (27) leading to a remote **light** source. The **tube** engages the stem at the inset (14), holding it to the **bundle** at the end for **light** transmission through the **body**. When the **body** is in the vagina, the peripheral rim (17) of the cup (15) of the **body** is at the fornix (33). **Light** passes through the **body** from the end of the stem and exits the rim to **illuminate** the fornix... ...The **illumination** of the fornix enables a **surgeon** to determine exactly where tissues are to be cut to remove the cervix from its surrounding attachments during e.g. hysterectomy. Blood from the cutting of tissues may flow into the **hollow** of the cup... ...USE/ADVANTAGE - For making fornix visible and defined inside body cavity for execution of **surgical** or **medical** therapeutic procedures. For treatment of endometriosis via laparoscopy or performance of hysterectomy via pelviscopy. For treatment of infertility and pelvic inflamminatory disease. Provides operator with... **Title Terms** .../Index Terms/Additional Words: **ILLUMINATE**; **INSTRUMENT**; ... ...**LIGHT**; **FIBRE-OPTIC**; ... ...**PLASTIC**; ... ...**HOLLOW**; **Class Codes** International Patent Classification IPC Class Level Scope Position Status Version Date **A61B-0001/303**... ...**A61B-0019/00 A61B-0001/303**... ...**A61B-0019/00** Manual Codes (EPI/S-X): **S05-B09**... ...**S05-D04**... ...**V07-N03** Original Publication Data by Authority**Original Abstracts:**A **pipe** like optical **wave** guide illuminator transmits **light from a fiber optic** source through **a light** transmissive plastic **body**. **The body** has **an** elongated **stem** and a cup, with a **hollow** in the cup. **The** cup is engagable over the cervix and **light** is transmitted through **the** rim of the cup through the vaginal fornix in aid of **surgical** and **medical** procedures. A **pipe**-like optical **wave guide illuminator** transmits **light** from **a fiber optic source through a light-transmissive plastic body (11)**. **The body** (11) has **an** elongated **stem (12)** and a **cup** (15), with a **hollow** (16) in the cup (15). The cup (15) **is** engageable over the cervix and **light** is transmitted through the rim (17) of the **cup** (15) through the vaginal fornix in aid of **surgical** and **medical** procedures. **Claims:**An **illuminating instrument for the** vaginal fornix comprising a substantially **pipe**-shaped **light** transmissive **plastic body having a** cup, a **hollow**, and **an** elongated stem with a longitudinal axis, said stem having a free end with means to attach a **light** source **thereto**, said cup having an opening and extending outwardly from said stem in a direction generally perpendicular to the longitudinal axis of said stem, said opening having a rim sized to engage a cervix, said **hollow** extending **from** said opening into said stem toward said free end and terminating before said free end of said stem.

(More text below from EAST):

US Patent No. - PN (1):
5394863

Brief Summary Text - BSTX (28):

According to the present invent ion an optical wave guide trans illuminator for the vaginal fornix has a light transmissive plastic body shaped like a pipe. The pipe has an elongated stem and a cup. The stem has an end and the cup forms a hollow opening in the body extending from the stem and through the cup opening. The cup engages the cervix. A fiber optic light source is attachable to the stem.

Brief Summary Text - BSTX (29):

The body may be an acrylic resin. The hollow may taper outward from within said stem includes the cup. The hollow may terminate within the stem and the opening may define a rim from which light may be transmitted from the fiber optic light source through the rim and through the fornix.

Brief Summary Text - BSTX (31):

The may be a further opening through the body into the hollow which may be pluggable.

Brief Summary Text - BSTX (32):

A vaginal manipulator or a catheter may be engaged and used through the further opening.

Drawing Description Text - DRTX (5):

FIG. 4 is a cut away side elevation of the trans illuminator of the present invention, with a plugged opening.

Detailed Description Text - DETX (3):

As shown in FIG. 4, the trans illuminator 20 includes an opening 21, which can be plugged with a plug 22.

Detailed Description Text - DETX (9):

Hydrotubation of the uterus 31 may be carried out by removing the plug 22, placing a foley catheter 40 through the opening 21 in the body 11 and through

the cup 15 of the trans illuminator 20, passing it directly into the uterus 31
and filling the foley balloon 41 with water or air and then closing the valve
42. Hydrotubation is carried out by using a syringe 43 and passing Indigo
Carmin into the uterus 31 via the foley catheter 40. A dye can be seen from
above, spilling from the fallopian tubes 35, demonstrating tubal patency, or no
dye appearing which demonstrates tubal occlusion, seen through a
laparoscopically directed video camera (not shown). This is part of an
infertility workup. If infertility is a problem, the illuminated fornix 33
would identify clearly the vagina 32, especially if laser procedures were to be
performed.

Detailed Description Text - DETX (10):

Uterine manipulation upward or to the sides can be carried out with the
trans illuminators 10. 20, in place for procedures, and as shown in FIG. 7,
manipulation of the uterus 31 may be carried out by removing the plug 22,
placing a uterine manipulator 45 through the opening 21 in the body 11 and
through the cup 15 of the trans-illuminator 20, passing it directly into the
uterus 31. Manipulation may be carried out directly or in conjunction with
manipulation of the trans-illuminator 20.

Claims Text - CLTX (1):

1. An illuminating instrument for the vaginal fornix comprising a
substantially pipe-shaped light transmissive plastic body having a cup, a
hollow, and an elongated stem with a longitudinal axis, said stem having a free
end with means to attach a light source thereto, said cup having an opening and
extending outwardly from said stem in a direction generally perpendicular to

the longitudinal axis of said stem, said opening having a rim sized to engage a
cervix, said hollow extending from said opening into said stem toward said free
end and terminating before said free end of said stem.

Claims Text - CLTX (5):
5. The invention of claim 1, wherein said cup includes an aperture separate
from said opening in said cup.

END OF PATLIT BIBLIOGRAPHIC FILES

New EAST strategy:

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L123	259394	"606"/$.ccls. "600"/$.ccls. "362"/$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2008/03/19 11:01
L124	242909	(nesting nested nest nests concentric concentered concentrically concentrical coaxial coaxially) near5 (tube cylinder pipe conduit sleeve sheath hose)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2008/03/19 11:04
L125	7764	(frictional frictionally friction) near2 (engage engaged engageably engageable engagably engagable) near5 (tube cylinder pipe conduit sleeve sheath hose)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2008/03/19 11:04
L126	8386	(124 125) and 123	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2008/03/19 11:05
L127	1158	126 and "362"/$.ccls.	US-PGPUB; USPAT; USOCR;	OR	ON	2008/03/19 11:05

			FPRS; EPO; JPO; DERWENT			
L128	114	127 and (fiber fibre) near3 (optic optics optical optically)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	ON	2008/03/19 11:06
L129	23	("4613931" | "4933816" | "4975810" | "5111367" | "5345531" | "5602948" | "5613752" | "5639153" | "5690408" | "5784510" | "5838865" | "5982969" | "6056426" | "6217204" | "6243520" | "6257750" | "6272269" | "6275633").PN. OR ("6450677").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2008/03/19 11:23

US-PAT-NO: 5333228

DOCUMENT-IDENTIFIER: US 5333228 A

TITLE: Lateral illumination fiber optic cable device and method of manufacture

---------- KWIC ---------

Abstract Text - ABTX (1):

A fiber optic cable (10) suitable for lateral illumination lighting installations has a tubular central core (12), wrapped perimetrically with angularly evenly distributed bundles (15) of optical fibers (16) and covered with a transparent sheath (17). The core includes an outer cylindrical surface (14) of reflective material (24) that deflects inwardly directed lateral emissions back outwardly, so they can contribute usefully to the visible light. In manufacture, the bundles are wound about the core by a cabling machine which simultaneously extrudes the sheath about the winding. In a modified embodiment, a cable (10') includes an arcuate cutout (30) that mates with a

complementary track (39, 40) of a mounting strip (35) . Strip (35) includes a reflective substance in an area (38) between upper and lower cables (10') to present a continuous, top to bottom lateral illumination effect. In another form of the modified embodiment, the fiber bundles are provided directly within upper and lower reflective channels (41) formed integrally within the mounting strip. Detailed Description Text - DETX (4):

The bundles 15 are, in turn, covered with a clear plastic tubing or casing sheath 17 which has an inside cylindrical surface 18 in contact with the radial extremities of the bundles 15. The sheath 17 runs longitudinally, coaxially of the tubing 12, with the bundles being evenly angularly distributed about a common longitudinal axis 19 in an annular region formed in the space between the surfaces 14, 18. The bundles 15 may be laid straight, or helically wound about core 12, in the axial direction. Claims Text - CLTX (1):

1. A lateral illumination fiber optic cable device, comprising:

Claims Text - CLTX (3):

a plurality of optical fibers uniformly distributed circumferentially about the core and extending axially along the reflective surface; and

Claims Text - CLTX (4):

a transparent tubular sheath running longitudinally, coaxially of the core about the optical fibers.

Claims Text - CLTX (6):

3. A device as in claim 2, wherein the plurality of optical fibers comprises a plurality of optical fibers helically-twisted into a plurality of bundles.

Claims Text - CLTX (10):

7. In a lighting system comprising a length of fiber optic cable having a grouping of axially extending optical fibers with ends and a transparent tubular sheath surrounding the fibers, and a light source directed into the ends for providing lateral illumination from the fibers, the improvement comprising the cable including a tubular core having an outer surface and being located within the sheath to define a space between the core and the sheath, and means rendering the outer surface light reflective; and the optical fibers being located within the space.

Claims Text - CLTX (11):
8. An improvement as in claim 7, wherein the optical fibers are bundled into a plurality of bundles, and the bundles are uniformly distributed about the core outer surface.

Claims Text - CLTX (15):
12. A lateral illumination optical fiber lighting system, comprising:

Claims Text - CLTX (17):
first and second pluralities of optical fibers having ends;

Claims Text - CLTX (18):
means mounting the first and second pluralities of optical fibers to extend longitudinally along the front surface in respective upper and lower positions separated by a space;

Claims Text - CLTX (24):
15. A system as in claim 12, wherein the pluralities of optical fibers comprise pluralities of bundles of optical fibers.

3614415

DOCUMENT-IDENTIFIER: US 3614415 A

TITLE: FIBER ILLUMINATOR

---------- KWIC ---------

Detailed Description Text - DETX (4):

To tube 18 may be connected a wide variety of instruments which are used to illuminate, examine or operate in the inter-oral cavity. One such instrument is shown in FIGS. 2 and 3. The instrument 19, which may be termed a transilluminator permits a dental assistant to direct light on a particular work area while the dentist is operating on the area. Transilluminator 19 includes a handle 21 and a tube 22 coaxial with handle 21. Handle 21 includes a cylindrical passage 23 which communicates at one end with tube 22 and which extends outwardly through the top end of handle 21. A slot 24 extends through a wall of handle 21 proximate the top end of the handle and communicates with cylindrical passage 23. The inside diameter of cylindrical passage 23 is approximately the same as the outside diameter of tube 18. The inside diameter of the cylindrical passage is preferably slightly larger than the outside diameter of the tube so that the tube may be easily inserted in the cylindrical passage. The width of slot 24 taken transversely of the longitudinal axis of passage 23 is approximately the same as the major diameter of passage 23.

When it is desired to mount transilluminator 19 on tube 18, straight section 25 is first inserted in cylindrical passage 23 and the transilluminator is oriented so that continued insertion of tube 18 permits straight section 26 to

enter slot 24. By a slight force during insertion, the intersecting edge 28 of slot 24 and cylindrical passage 23 will bear against the area of intersection 27 and slightly deflect straight section 26 to thereby frictionally retain tube 18 in the transilluminator. To remove the primary light probe from the transilluminator, it is merely necessary to grasp collar 17 and physically withdraw the primary light probe.

Detailed Description Text - DETX (8):

The foregoing means for releasably connecting the primary light probe to the hand-held instrument may be utilized for a variety of instruments. In FIG. 4 there is shown a hand-held mirror 29 having a handle 31 and a reflector 32. As with transilluminator 19, a cylindrical passage extends down through handle 31 and receives straight section 25 of the primary light probe. The upper end of the handle is provided with a slot 24 for receiving straight section 26 of the primary light probe to cause the bundle to trail away from handle 31 and also cause frictional engagement of the primary light probe with the handle.

Detailed Description Text - DETX (10):

From the foregoing description, it is seen that the various instruments have in common a passage and a slot which receive therein the primary light probe in order to frictionally retain the probe within the instrument and to guide the bundle of fibers away from the longitudinal axis of the handle of the instrument.

Claims Text - CLTX (1):

1. In a fiber illuminator, in combination, a light source, a flexible fiber optic bundle, a relatively rigid primary light probe comprising a straight

portion forming one end of said probe and a further portion connected to said straight portion and disposed at an angle relative thereto, one end of said fiber optic bundle terminating in said straight portion of said probe and the other end of said fiber optic bundle being disposed adjacent said light source, and an instrument having a longitudinal passage adapted to snugly receive said straight portion of said probe, said longitudinal passage being at least slightly longer than said straight portion to permit at least the juncture between said straight portion and said further portion of said probe to be inserted into said passage such that due to the angle between said straight and further portions and the fact that said longitudinal passage is adapted to only snugly receive said straight portion, a slight deflection of said further portion relative to said straight portion is effected when said juncture therebetween is forced into said longitudinal passage whereby a secure and releasable frictional interengagement between said instrument and probe is effected.

US-PAT-NO: 3261351

DOCUMENT-IDENTIFIER: US 3261351 A

TITLE: Endoscope

DATE-ISSUED: July 19, 1966

INVENTOR: WALLACE FREDERICK J

INT-CL-CURRENT:

TYPE	IPC	DATE
CIPS	A61B1/06	20060101
CIPS	A61B1/07	20060101

US-CL-CURRENT: 600/156, 362/574 , 385/117 , 600/164 , 600/920 In this portion of the instrument 35 the bundle of light-conducting
fibers and the irrigation conduit are disposed within the crescent-sbaped
chamber. In the distal sheath section the telescope tubular member is
concentrically disposed within the sheath and a concentric middle ttibe is
disposed bet@veen the telescope 40 tubular member and the sheath, and forms two
annular chambers, one with each of them. The light-condticting fibers are
disposed within the anntilar chamber adjacent the telescope tubular member.
The annular chamber adjacent the sheath forms the distal portion of the
irrigation 45 ebannel. The proximal end portion of the light-conducting fiber
bundle is formed into a solid rod which is of a suitable configuration,
preferably cylindrical, for coupling to a source of light. Because endoscopes
are shaped to con- 50 form to the orifice being examined, the distal end
portions of the bundles may b-. formed into a variety of shapes. A preferred
shape is that of an annulus substantially coextensive with the distal end of
the distal sheath.
The mountin.- member 18 supports a middle tube 24. A telescope tube 26 is
concentrically supported inside the middle tube 24 by optic fibers 28. The
optic fibers 28 are substantially coextensive with the distal end of the middle 2. A
choledochoscope comprising a mounting member; a proximal sheath and a distal
sheath connected to and extending from opposite sides of said mounting memb-,r;
a first telescopic tube eccentrically disposed within said proximal sheath and
connected to said mounting member; a second -telescopic tube concentrically

d, '@sposed within said distal sheath; a middle tube concentrically disposed
between said distal sheath and said second telescopic tube and connected to
said mounting member and forming first and second annular chambers therewith, a
plurality of light-conductin- fibers disposed between said proximal sheath and
said first telescopic tube and within said first annular chamber and supporting
said secoiid telescopic tube within said middle tube, said light- conducting
fibers being substantially coextensive with the distal end of said distal
sheath and extending adjacent the proximal end of sa:id proximal sheath, the
proximal ends of said light-conductin.a fibers being disposed at an angle to
the proximal end of said proximal sheath and bein.- adapted for connection to a
source of external light whereby the intemal orifice may be illuminated

tube 24 and the telescope tube 26.

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TITLE: Endoscope

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TYPE	IPC	DATE
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The objects of this invention
may be accomplished by forming an endoscope tubular member from two concentric,
coaxial, rigid tubes. The concentric tubes may be circular
The presence of the fibers between the two

tubes aids in maintaining the tubes concentric. The resin is soft enough to permit the bundle to bend without breaking the fibers. Ttiming now to FIGURES 1, 2 and 3, a generalized embodiment of the device of the present invention is shown. Rigid light carrying sheath 10 is comprised of outer tube 12 and concentric, coaxial, inner ttibe 14. Disposed witliin the annular space 15 between tubes 12 and 14 is bundle 16 comprised of a plurailty of individual optic fibers 18. The proximal end of bundle 16 is formed into a solid rod 20 for connection to a light source. A high intensity light source may be coupled to the @rigid bundle 16. For this purpose a high intensity lamp (not shown) may be mounted within a- container, and flexible optic fiber light conductor 24 havin- rigid end portions may be mounted adjacent to the lamp, so that it receives the light from the lamp. The opposite rigid end of the flexible light conductor 24 is fittted with a plugin connector 25 adapted to be inserted into !a receptacle or jack 22 so as to hold the end face of the light carrier 24 in close jtixtaposition to the end face of bundle 20. The proximal and distal ends of btindle 16 are optically ground to provide a maximum transmission of 1,,'ght in a controlled pattern to the internal orifice. An embodiment of the preseiit invention is shown in the- proctoscope of FIGURES 4 to 10. The proctoscope is 3,261,349 4 comprised of two rigid concentric tubes and a layer of optic fibers wmch are positioned in the annular space between the tubes. The distal end of the bundle is formed into an annulus, and the proximal end is formed into a circular rod for connection to a flexible optic fiber- lightcarrying bundle. Referring now to the drawings in detail, proctoscope 100

is comprised of an elongated outer tube 102 containing within it concentric coaxial inner tube 104. Substan- 10 tially filling the annular space between outer tube 102 and inner tube 104 is optic fiber bundle 106. Distal eid 108 of optic fiber bundle 106 is a solid annulus, optically ground. Rim 110 siirrounds outer tube 102 at the dist,al end. At its proximal end outer tube 102 is joined iii 15 liquid-tight relation to an annular mounting member 112 which is connected to mounting ring 114. Yoke 116 surTounds annular mounting member 112 and engages terminal support 117 containing collar 118 wbich supports proximal end 120 of fiber bundle 106. Proximal end 120 of 20 bundle 106 is optically ground and is joined by receptacle or jack 122 to flexible light-carrying bundle 124, as more fully described below. Planar glass plates 125 protect the ends of bundles 106 and 124. Insufflation cap 126 forms a liquid-tight seal with mounting ring 114. As best shown 25 in FIGURE 7, insufflation cap 126 is equipped with con- duit 127 and valve 128 for connection to an extemal insufflation medium and also contains transparent planar lens 130 to permit visual inspection during insufflation. Stud 132 connected to mounting ring 114 supports 30 handle 134 which is held in place by thumb screw 136 engaging stud 132. By means of mounting rod 138, connected to mounting ring 114, proximal telescope 140 is maintained in spaced relation to planar lens 130 and is arranged for clear vision down the interior length of inner 35 tube 104. Obturator 142 may be utilized with the procto- scope in well known manner. For removably connecting the endoscope to a hi.-h intensity light source (not shown), flexible light-carrier 124 40 is fitted with plug-in

connector 123 for insertion into a receptacle or jack 122 removably mounted on
collar 118. The end portion 121 of flexible light-carrier 124 carrying plan:ar
lens 125 is positioned in jack 122 and is anchored in place by means of its
engagement with plug-in con- 45 nector 123, which in turn is in frictional
engagement with jack 122. The interior surface of jack 122 makes good
surface-to-surface contact with the exterior surface of terminal support 118
and has annular recess 119 for clamping engagement with annular spring 127
carried by the rao jack. In use, proctoscope 100 is inserted into the internal
cavity of a patient with obturator 142 in place to provide a smooth rounded end
as an ;aid to insertion. The optic fiber bundle is connected at its proximal
end to light-carry- 55 ing bundle 124, the opposite end of which is presented
to a source of light. The light transmit@ted by bundle 106 exits at its distal
end 108 and illuminates the internal cavity under view through telescope 140.
If desired, insufflation may be carried out through insufflation cap 126 60 by
manipulation of valve 128 in conduit 127 which is connected to a source of
suitable insufflation fluid. FIGURES 11-15 detail the embodiment of a
urethroscope utilizing the present invention. Urethroscope 200 is made up of
sheath 202, rigid light-carrier 204 and surgi6,5 cal telescope 206. As best
shown in FIGURE 11, rigid light-carrier 204 is further COMprised of outer tube
208 and COnCentriC inner tube 210, coaxial with outer tube 208.

in cross-section
but for most applications are preferably slightly elliptical. For some
applications it is desirable to taper the concentric tubes.

VVhat is
claimed is: 1. In an endoscopic instrtiment for the examination Of internal
orifices the improvement comprising first and second rigid concentric tu@bes
defining an annular space between them, a pltirality of optic fibers disposed
in said annular space, said fibers and said ttibes being rigidly adhered
together along substantially the entire]en.-th of
3,261,349 said instrtiment,
the proximal ends of said optic fibers extending adjacent the proximal ends of
said tubes being adapted for cotipling to a light source and the distal ends of
said optic fibers being adapted to illuminate the internal orifice. 2. In an
endoscopic instrument for the examination of interiial orifices the improvement
comprising first and second rigid concentric tubes defining an anniilar space
between them, a plurality of optic fibers disposed in said 10 annular space,
said fibers and said tubes being rigidly adhered together along substantially
the entire length of said instrument, the distal ends of said optic fibers
being formed into a solid annular ring adapted for illumination of the internal
orifices, and the proximal ends of said 15 optic fibers extending adjacent the
proximal ends of said tubes being formed into a solid rod for coupling to a
light sotirce. 3. In a urethroscope comprising an elongated cylindrical
endoseopic sheath, a light carrier disposed within the 20 sheath and a
telescope, the improvement in which the light carrier further comprises a rigid
outer tube having a proximal eiid and a distal end, an annular mountinmember
joined to said oliter tube adjacent the proximal end thereof, an inner tube
concentric with said outer 25 tube and defining an annular space therewith, the
distal end of said inner tube being substantially coextensive with the distal

end of said outer tube, a plurality of optic fibers disposed in said annular space, said fibers and said tubes being rigidly adhered to.-ether along substan- 30 tially the entire length of said instrument, the proximal ends of said optic fibers extending adjacent the proximal ends of said tubes being adapted for coupling to a light source and the distal ends of said optic fibers being adapted to illuminate the internal orifice, a housing con- 35 nected to said mounting member and encircling said proxim,,il end of said inner tube and having a channel at an angle to the axis of said inner and outer tubes, the proximal ends of said optic fibers passing through said channel in said housing. 40 4. In a urethroseope comprising an elongated cylindrical endoseopic sheath, a ligbt carrier disposed within the sheath and a telescope, the improvement in which the li-ht carrier further comprises a rigid outer tube having a proximal end and a distal end, an annular mounting 45 member joined to said otiter tube adjacent the proximal end thereof, an inner tube concentric with said outer tube and defining an annular space therewitb, the distal end of said inner tube being substantially coextensive with the distal end of said outer tube, a bundle of optic 50 fibers substantially - uniformly disposed in said annular space between said tubes, said fibers and said tubes being rigidly adhered together along stibstantially the entire len.-th of said instrument, the distal end portion of said bundle being formed into a solid annulus and optically 55 ground, a housing connected to said mounting member and encircling said proximal end of said inner tube and having a channel at an angle to the axis of said inner and outer tubes, the proximal end of said bundle passing

thi-ough said channel in said housing and being 60 formed into a solid rod
recessed from the end of said channel. 5. A iirethroseope. comprisin-. an
elongated cylindrical- endoscopic sheath having a proximal and a distal end, a
first annular mounting member joined to said sheath 65 adjacent said proximal
end and having an annular wall defining a proximally tapered cavity
communicating with the interior of said sheath, a collar engaging said sheatli
and said first meniber and forming a liquid-tight seal therewith, a conduit
connected to said mounting member 70 and communicating with the interior of
said cavity; a light carrier further comprising a rigid outer tube having a
proximal and a distal end, a second annular mounting member joined to said
outer tube adjacent the proximal end thereof, and having a tapered outer
surface adapt- 75 ed to uniformly engage the tapered cavity of said first

7 annular member, an inner ttibe concentric with said outer tube and defining
an ahnular space therewith, the distal end of said inner tube being@
substantially coextensive with the distal end of said oiiter tube, a bundle of
optic fibers substantially uniformly disposed between said tubes, the distal
end portion of said bundle being formed into a solid annulus, a housing
connected to said proximal end of said outer tube, a terminal support connected
to said housing and having a passage at an angle to the axis of said inner and
out6r tubes, the proximal end portion of said bundle passing through said
passage in said terminal support and being formed into a solid rod recessed
from the end of said passage; means to couple said sheath to said light

carrier; a telescope assembly including a stem adapted to extend concentrically through said inner tube, and means to couple said telescope assembly to said light carrier. 6. In a proctoscope comprising an endoscopic sheath, telescope and insufflation means@ an improved endoseopic sheath comprising a rigid outer tube, an inner tube concentrically disposed within said outer tube and forming an annular space therewith, a plurality of optic fibers disposed in said annular space, said fl-bers and said tubes being rigidly adhered together along substantially the entire length of said instrument, the proximal ends of said optic -fibers extending adjacent the proximal ends of said tubes being adapted for coupling to a light source and the distal ends, of said optic fibers being adapted to illuminate the intemal orifice. 7. In a proctoscope comprising an endoseopic sheath, telescope and insufflation means an improved endoscopic sheath comprising a rigid outer tube, an inrier tube concentrically disposed within said outer tube and forming an annular space therewith, a bundle of optic.fibers substantially uniformly disposed within the annular space between said inner and outer tubes and adapted to provide illumination, said flbers and said tubes being rigidly adhered together along substantially'the entire length pf said instrument, the distal end portion of said bundle being formed into a solid annulus and being substantially coextensive with the distal ends of said inner and outer tubes, means to support the proximal end portion of said bundle, the proximal end portion of said bundle extending adjacent the proximal ends of said tubes being formed into a solid rod adapted for connection to an external light source. 8. A proctoseope comprising a rigid outer tube having a

distal and a proximal end, an inner tube concentrically
3,261,349 disposed
within said outer tube and forming an annular space
therewith, a bundle of
optic fibers substantially uniformly disposed within said
annulus between said
inner and outer tubes, the distal end portion of said
bundle being formed into
a solid annulus and being substantially coextensive with
the distal end of said
iiiner and outer tubes, an annular mounting member joined
to the proximal end
of said outer tube, a mounting ring connected t,c) said
annular mounting
member, a yoke surrounding 1, said mounting member and
having a passage@
therethrough, a collar connected to said yoke, the proximal
end portion of
s'aid bundle being forined into a solid rod and supported.
by said collar and
being recessed from said collar, and being adapted for
connection to an 15
extemal light source; a handle connected to said mounting
ring; a telescope
assembly connected to said mounting ring and held in spaced
relation for vision
through said inner tube; an insufflation cap enclosing the
opening in said
mounting ring, a conduit connected to said 20 mounting ring
and communicating
with the interior,of said ring and adapted for connection
to an exterr@al
insufflation ffuid, and a valve in said conduit for
controlling the flow of
said insufflation fluid. 9. A light-conducting optic
device comprising an
outer 25 tube, an inner tube disposed within said outer
tube and defining an
annular space therewith, a plurality of optic fibers
disposed in said annular
space, and a mounting member supporting each of said tubes
at the proximal end
and adapted for connecting said device to an endo- 30 scope
disp6sed within
said inner tube, said fibers throughout their extent being
adhered together and

substantially rigid, the distal ends of said optic flbers being formed into an
annulus, the proximal ends of said optic fibers being gathered into a rod and
supported by said mounting 35 member at an angle to said tubes and adapted to
be connected to an extemal source of light.

End of EAST results